

TRAITÉ DE COOPÉRATION EN MATIÈRE DE BREVETS

PCT

RAPPORT PRÉLIMINAIRE INTERNATIONAL SUR LA BREVETABILITÉ

(chapitre I du Traité de coopération en matière de brevets)

(règle 44bis du PCT)

Référence du dossier du déposant ou du mandataire R8703WO	POUR SUITE À DONNER		Voir le point 4 ci-dessous
Demande internationale no. PCT/FR2004/000689	Date du dépôt international (<i>jour/mois/année</i>) 19 March 2004 (19.03.2004)	Date de priorité (<i>jour/mois/année</i>) 20 March 2003 (20.03.2003)	
Classification internationale des brevets (8 ^e édition, sauf indication d'une #dition ant#rieure) Voir les informations pertinentes dans le formulaire PCT/ISA/237			
Déposant FRANCE TELECOM			

1.	Le présent rapport préliminaire international sur la brevetabilité (chapitre I) est établi par le Bureau international au nom de l'administration chargée de la recherche internationale selon la règle 44bis.1.a).																										
2.	Ce RAPPORT comprend un total de 6 feuilles, y compris la présente feuille de couverture. Dans les feuilles jointes, toute référence à l'opinion écrite de l'administration chargée de la recherche internationale doit être entendue, à la place, comme une référence au rapport préliminaire international sur la brevetabilité (chapitre I).																										
3.	Le présent rapport contient des indications relatives aux points suivants : <table style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Cadre n° I</td> <td style="width: 60%;">Base de l'opinion</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Cadre n° II</td> <td>Priorité</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Cadre n° III</td> <td>Absence de formulation d'opinion quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Cadre n° IV</td> <td>Absence d'unité de l'invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Cadre n° V</td> <td>Déclaration motivée selon l'article 35.2) quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Cadre n° VI</td> <td>Certains documents cités</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Cadre n° VII</td> <td>Certaines irrégularités relevées dans la demande internationale</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Cadre n° VIII</td> <td>Certaines observations relatives à la demande internationale</td> </tr> </table>			<input checked="" type="checkbox"/>	Cadre n° I	Base de l'opinion	<input type="checkbox"/>	Cadre n° II	Priorité	<input type="checkbox"/>	Cadre n° III	Absence de formulation d'opinion quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle	<input type="checkbox"/>	Cadre n° IV	Absence d'unité de l'invention	<input checked="" type="checkbox"/>	Cadre n° V	Déclaration motivée selon l'article 35.2) quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration	<input type="checkbox"/>	Cadre n° VI	Certains documents cités	<input type="checkbox"/>	Cadre n° VII	Certaines irrégularités relevées dans la demande internationale	<input type="checkbox"/>	Cadre n° VIII	Certaines observations relatives à la demande internationale
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4.	Le Bureau international communiquera le présent rapport aux offices désignés conformément aux règles 44bis.3.c) et 93bis.1 mais pas avant l'expiration du délai de 30 mois à compter de la date de priorité (règle 44bis.2), sauf si le déposant a présenté une requête expresse à cet égard en vertu de l'article 23.2).																										

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PATENT COOPERATION TREATY

Translation

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

<div style="border: 1px solid black; width: 100%; height: 100%;"></div>		Date of mailing (day/month/year)
Applicant's or agent's file reference R8703WO		FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/FR2004/000689	International filing date (day/month/year) 19.03.2004	Priority date (day/month/year) 20.03.2003
International Patent Classification (IPC) or both national classification and IPC		
Applicant FRANCE TELECOM		

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP	Authorized officer
Facsimile No.	Telephone No.

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Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language
_____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-41, 43-47	YES
	Claims	42	NO
Inventive step (IS)	Claims	1-41, 43-47	YES
	Claims	42	NO
Industrial applicability (IA)	Claims	1-47	YES
	Claims		NO

2. Citations and explanations:

The present written opinion makes mention of the following documents, cited in the International Research Report:

- D1: HARIDASAN R. *et al.*: "Scalable coding of video objects" CIRCUITS AND SYSTEMS, 1998. ISCAS '98. PROCEEDINGS OF THE 1998 IEEE INTERNATIONAL SYMPOSIUM ON MONTEREY, CA, USA 31 MAY-3 JUNE 1998, NEW YORK, NY, USA, IEEE, US, 31 May 1998, pages 289-292, XP01 0289442 ISBN: 0-7803-4455-3;
- D2: CAMMAS N. *et al.*: "FINE GRAIN SCALABLE VIDEO CODING USING 3D WAVELETS AND ACTIVE MESHES" PROCEEDINGS OF THE SPIE, SPIE, BELLINGHAM, VA, US, vol. 5022, 21 January 2003, pages 358365, XP008024465 ISSN: 0277-786X;
- D3: MARQUANT G.: "REPRESENTATION THESIS FOR DISTORTABLE ADAPTIVE MESHING FOR THE MANIPULATION AND COMMUNICATION OF VIDEO OBJECTS" UNIVERSITY OF RENNES THESIS no. 2453, December 2000, pages 5-17,19-77,79-163,165-267,269-296, XP001059069;
- D4: US-A-5 974183 (WILKINSON JAMES HEDLEY) 26 October 1999.

1. The present application fails to meet the requirements of PCT Articles 33, the subject matter of one claim not being new, considering the prior art such as defined in the Rule of performance (PCT Article 33(2); PCT Rule 64(1)-(3)). In addition, the application fails to meet the requirements of PCT Article 6, several claims not being clear. Finally, the application fails to meet the requirements of PCT Rule 6.3(b), since certain claims contain features in the characterising part that are known by the prior art in combination with the features expressed in the preamble.

- 1.1 The subject matter of claim 42 is not new (PCT Article 33(2)), considering the prior art as defined in the Rule of performance (PCT Rule 64(1)-(3)).

D1 describes in paragraph 4 on pages IV-290 – IV-291 and in figures 3, 4 (the references in parentheses apply to this document) an encryption device for a sequence of source images, carrying out a movement/texture break-down, producing, for at least some of these source images, representative movement information, these movement images (defined by D1 as the region of support or the contour of an object determined to aid the estimation of movement), and representative texture information, said texture images (the texture of the object), and an encryption for wavelets, comprising at least encryption means by wavelets applied to images of difference, said, residual, obtained by comparison between one source image and a corresponding estimated image (one such encryption is particularly applied on the textures residuals, cf. page IV-291, paragraph 4.2.3; figure 4).

Therefore the subject matter of claim 42 is not new (PCT Article 33(2)).

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Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

2.1 Contrary to the conditions expressed in PCT Article 6, claims 33, 43, 47 are not clear, since the operation of projection of the texture image over the movement images (for example, claim 33, lines 26-27) is not clearly defined in relation to the projection definition, as defined in claim 1 (lines 11-13).

In addition, this operation is interpreted as being inverse to the operation, as defined in claim 1.

2.2 By applying this interpretation, the combination of the features of claim 1 and of claims 29, 33, 43-47, is not included in the prior art and does not follow in an obvious manner for the following reasons.

D2, which is considered as being the prior art closest to the object of claim 1, describes (the references in parentheses apply to this document) a procedure for encryption a sequence of source images, carrying out a movement/texture break-down (pages 359-360, paragraphs 3.1, 3.2; figure 5), producing, for at least certain of these source images, representative information of the movement, said movement images, and representative information of the texture, said texture images and an encryption for wavelets, comprising the following steps:

an estimation of movement, in order to obtain these movement images (page 360, paragraph 3.2; figure 3);

projection of each of the source images on at least a reference grid, in order to obtain the texture images, upon which the effect of movement has been cancelled out (page 360, paragraph 3.2);

encryption of texture by wavelets (pages 360-361, paragraph 3.3; figures 2, 4, 7).

2.3 Accordingly, the subject matter of claim 2 differs from this known procedure in that the following steps are included after the projection step:

comparison between a movement image and a corresponding estimated image, in order to obtain a movement difference image, known as the movement residual;

comparison between a texture image and a corresponding estimated image, in order to obtain a texture difference image;

independent encryption, by wavelets, of the movement residuals and the texture residuals.

Therefore, the subject matter of claim 1 is not new (PCT Article 33(2)).

2.4 The problem that the present invention proposes to solve can therefore be considered as reducing the amount of data to be transmitted for representing a sequence of video images (description, page 3, lines 23-25). This problem is well known in the prior art.

2.5 The solution of this problem, proposed in claim 1 of the present application, is considered to imply an inventive step (PCT Article 33(3), for the following reasons.

A person skilled in the art knows very well that the predictive encryption procedures resolve the proposed problem and would certainly consult documents D3 and D4.

D3 (pages 220-221, paragraph 9.2.7; figure 9.9) describes a procedure for performing a comparison between a movement image and a corresponding estimated image, in order to obtain a movement residual.

On the other hand, it does not describe nor suggest a procedure for performing a comparison between a texture image and a corresponding estimated image, in order to obtain a texture difference image.

In fact, it describes a process of predictive encryption with compensation for movement and without projection of each of the source images on a reference grid, in order to obtain texture images (pages 257-258, paragraph 11.2; figures 11.13, 11.14). This procedure is not evidently applicable in the case of texture images, which is to say,

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upon those for which the effect of movement has been cancelled out, since the prediction itself implies a step of movement compensation.

D4 describes a procedure for performing a comparison between an image without consideration of its movement (column 2, lines 51-52) and a corresponding estimated image, in order to obtain a residual (column 2, line 21 – column 4, line 1; figure 1). Nevertheless, the encryption by wavelets or in general by comparison of the residuals is not provided or suggested.

Therefore, both D3 and D4 cannot be used by a person skilled in the art in combination with D2 to obtain the procedure, subject matter of claim 1.

2.6 For corresponding reasons, the subject matter of independent claims 29, 33, 43-47 meet also the requirements of novelty and inventive step of PCT Article 33.

In fact, the subject matter of these claims refers to the encrypted signal or to the procedure or decryption device, perfectly in correspondence with the encryption procedure defined in claim 1.

2.7 Claims 2-28 depend on claim 1; claims 30-32 depend on claim 29; claims 34-41 depend on claim 33. Therefore, as such, they meet the requirements of novelty and inventive step of the PCT.

3. Contrary to the conditions expressed in PCT Rule 6.3(b), claims 1, 28, 46 contain features in the characterising part that are known by the prior art in combination with the features described in the preamble.

3.1 Claim 1 is drafted in two parts. However, the features given by the following steps:

estimation of movement, in order to obtain the movement images;
projection of each of the source images on at least a reference grid for obtaining the said texture images,
upon which the effect of movement has been cancelled;

should not appear in the characterising part, since they are disclosed in document D1 (cf. paragraph 2.2 above), in combination with the features expressed in the preamble (PCT Rule 6.3(b)).

3.2 Claim 28 is drafted in two parts. However, the features given by the following steps:

selection of a group of source images;
analysis of movement in said source image group, producing the movement images;
analysis of the texture of the source images of said group, said texture being plated on the corresponding movement images, producing said texture images;

should not appear in the characterising part, since they are disclosed in document D1 (cf. paragraph 2.2 above), in combination with the features expressed in the preamble (PCT Rule 6.3(b)).

3.3 Claim 46 is drafted in two parts. However, the features given by the instructions to perform:

an estimation of movement, for obtaining the movement images;
a projection of each of the source images on at least a reference grid, for obtaining the texture images,
upon which the effect of movement has been cancelled out;

should not appear in the characterising part, since they are disclosed in document D1 (cf. paragraph 2.2 above), in combination with the features expressed in the preamble (PCT Rule 6.3(b)).

4. Contrary to the requirements of PCT Rule 5.1(a)(ii) the description does not indicate the state of relevant prior art disclosed in documents D2, D4 and does not cite these documents.